

## ABSTRACT OF THE DISCLOSURE

A system and method for utilizing a search tool that registers transformation of a trained pattern by at least four degrees of freedom to register the instance of a pattern in an arbitrary six-degree-of-freedom pose is provided. The search tool is first trained to  
5 recognize a plurality of versions of a trained pattern/fiducial that are incrementally transposed to induce differing levels of known aspect and shear. An object having several instances of the trained pattern located at known spacings and orientations therebetween is imaged by the trained search tool, and the located instances of the trained pattern are compared to expected instances of the trained pattern to measure relative six-degree-of-  
10 freedom orientation for the underlying object.